

# MARKS & CLERK

*Patent and Trade Mark Attorneys*

European Patent Attorneys  
Chartered Patent Attorneys  
European Trade Mark Attorneys  
Registered Trade Mark Attorneys

**10/582318**

**Liverpool Office**

Tower Building

Water Street

Liverpool L3 1BA

Tel: +44 (0)151 243 5400

Fax: +44 (0)151 236 2244/1247

[liverpool@marks-clerk.com](mailto:liverpool@marks-clerk.com)

[www.marks-clerk.com](http://www.marks-clerk.com)

AP20 Rec'd PCT/PTO 09 JUN 2006

The International Preliminary Examining Authority  
European Patent Office  
Branch at the Hague  
P.B. 5818 Patentlaan, 2  
2280 HV RIJSWIJK (ZH)  
Netherlands

Our Ref: KJL/DC/P5366/P5502

Your Ref:

Date: 27<sup>th</sup> September 2005

**FAX ONLY**

Dear Sirs

**Re: International Patent Application No. PCT/GB2004/005195**  
**Syringe Driver Housing**  
**Zi Medical PLC**  
**Our file P5366**

We are replying to the Written Opinion of the International Searching Authority dated 2<sup>nd</sup> June 2005 in respect of the above application. Please find enclosed amended pages 2 to 6, 9 to 11 to replace the corresponding pages currently on file.

Independent claim 1 and claim 6 (previous claim 11) have been amended to be directed to the preferred embodiment of the present invention, being the provision of a syringe driver housing having a main body part having at least two interchangeable covers, wherein a first cover is of a similar length to the main body part and a second cover provides an extension to the body part, the second cover having a longitudinal cross-section in the form of a hook comprising a long arm and a tail, the long arm forming a cover for laying over the syringe and the tail forming the extension for mating with the main body part. This has required the cancellation of a number of claims.

It is submitted that the subject matter of claim 1 and claim 6 is novel and involves an inventive step over the prior art documents.

None of the disclosures describe a syringe driver housing having a second interchangeable cover in the general form of a hook that provides an extension to the length of the main body of the syringe driver housing. This provides for a simple but highly effective mechanism for extending the length of the housing to enable the syringe driver to accommodate syringes of different sizes. This is particularly important for a portable syringe driver since it allows the assembly to be kept as small as possible but removes the need for separate syringe driver assemblies to be provided for syringes of different sizes. Furthermore, the mechanism for altering the length of the housing is extremely user-friendly. It should be noted that EP 1 123 712 which is considered to be the closest state of the art, does not provide for an extension to the length of the syringe nor

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does it provide for a tight seal between the main body and cover which is important when providing a portable device that intermittently dispenses medication to the user. Moreover, the present invention enables different sized syringes to be accommodated by means of the use of only two different parts.

The description has been amended to bring it in line with the amended claims and the prior art documents have been identified and briefly discussed. Reference numerals have been inserted into the claims in accordance with Rule 6.2(b) PCT.

We trust that a favourable International Preliminary Examination Report will follow in due course.

Yours faithfully



**Kate J. Lees (Mrs)**  
**Authorised Representative of**  
**MARKS & CLERK**  
Direct dial +44 151 243 5401  
E-mail: [kleees@marks-clerk.com](mailto:kleees@marks-clerk.com)

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Accordingly, the present invention provides a housing for a syringe driver assembly comprising a main body part for supporting a syringe and at least two interchangeable covers for attachment to the body part, characterised in that the main body part is sized to receive a syringe of a relatively small length and a first interchangeable cover is of a similar length to the main body part for extending over the syringe to provide a closed housing and wherein a second cover provides an extension to the body part, the second cover having a longitudinal cross-section in the general form of a hook comprising a long arm and a tail, the long arm forming the cover for laying over the syringe and the tail forming the extension for mating with the main body part.

The housing may be provided as a kit of parts.

It is to be appreciated that any number of different sized covers may be provided for housing syringes of different lengths and/or diameters. Alternatively, just two could be provided that correspond to the smallest and largest syringes that would be contained within the housing.

Preferably, the main body part comprises a container for receiving working parts of the syringe driver with a wall of the container forming a support for receiving the syringe. The main body part is preferably hollow for receiving the working components, such as the motor, battery and electronic controls. A bracket or clip may be provided for retaining the syringe on the support. The main body part may be any desired shape for receiving the component parts.

Each larger cover that provides an extension to the body part has a longitudinal cross-section that is in the general form of a hook comprising a long arm and a tail wherein the long arm of the hook forms the cover for laying over the syringe and the tail of the hook forms the extension for mating with the main body. Preferably, the long arm comprises two sides connected by a roof section for surround the syringe. Preferably, both sides of the long arm extend around to form the hook that engages with the main body, thereby forming an internal cavity or recess for receiving the end of the syringe. It is to be appreciated that the long arm of the hook corresponds substantially in length to the extended length of the syringe. Suitable means may be provided for ensuring a tight connection between the tail and the main body.

It is preferable for the region of the main body to which the extension may be attached to be provided with a male or female member for mating with a complimentary female or male member provided on the extension. Preferably, one end face of the main body is provided with a male or female member. In a preferred embodiment, the main body part is a moulded component having a male member formed as an integral part thereof.

Preferably, the cover is hingedly mounted to the side wall of the main body.

Preferably, the main body part and covers are formed as moulded components.

For a better understanding of the present invention and to show more clearly how it may be carried into effect, reference will now be made by way of example only to the accompanying drawings in which: -

Figure 1 is a perspective side view of a syringe driver housing that does not form an embodiment of the present invention, shown adapted for receiving a large syringe;

Figure 2 is a perspective side view of the syringe driver housing shown in Figure 1, shown with the cover removed;

Figure 3 is a perspective side view of the cover of the syringe driver housing shown in Figure 1;

Figure 4 is a perspective side view of the extension that has been removed from the housing shown in Figures 1 and 2;

Figure 5 is a perspective side view of the syringe driver housing of Figure 1 but having a cover for a small syringe attached thereto;

Figure 6 is a perspective side view of the syringe driver housing shown in Figure 5 having the front extension removed;

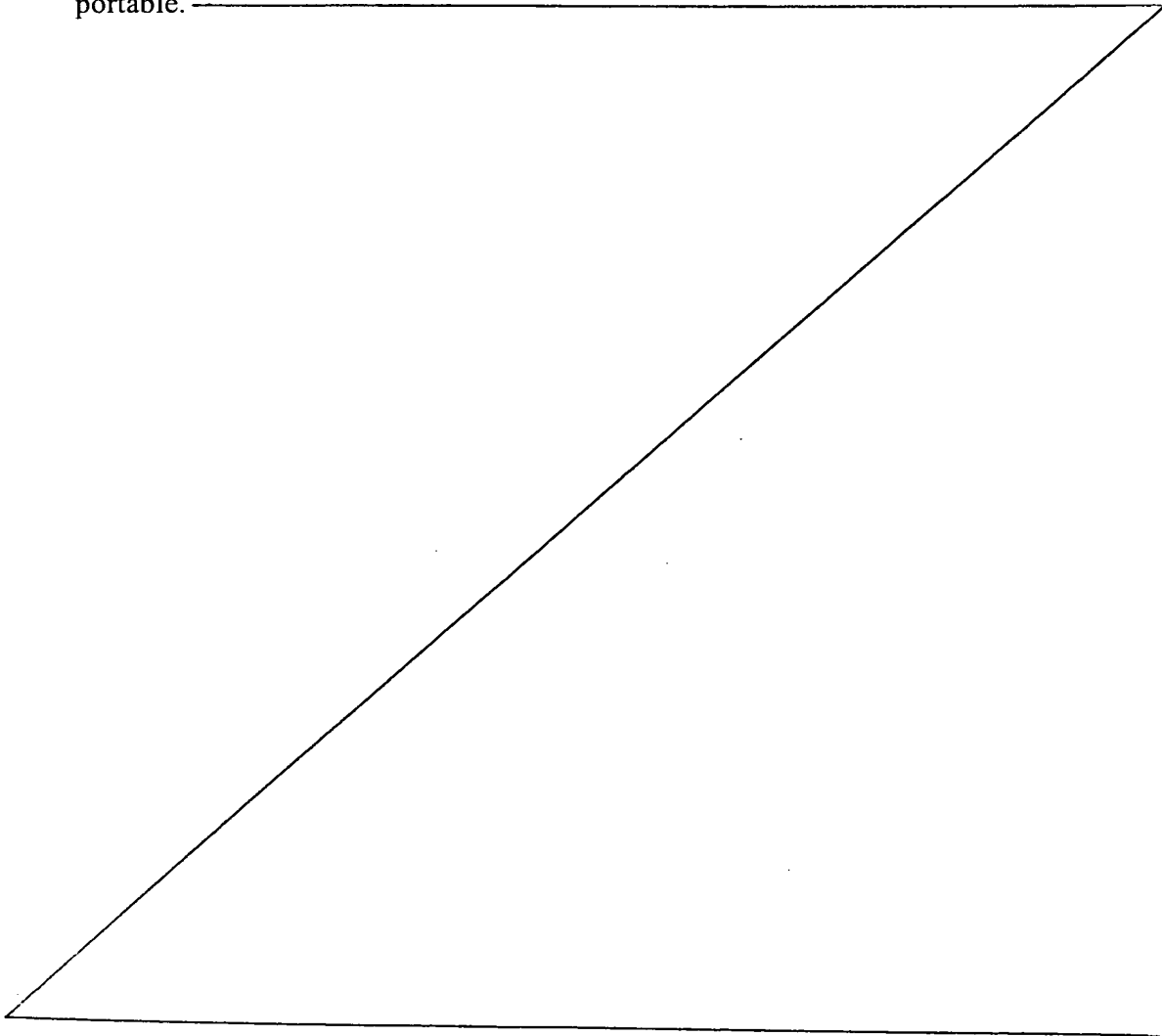
Figure 7 is a perspective side view of the cover attached to the syringe driver housing shown in Figure 6;

Figure 8 is a perspective side view of the syringe driver housing that does not form an embodiment of the present invention, shown adapted for receiving a small syringe;

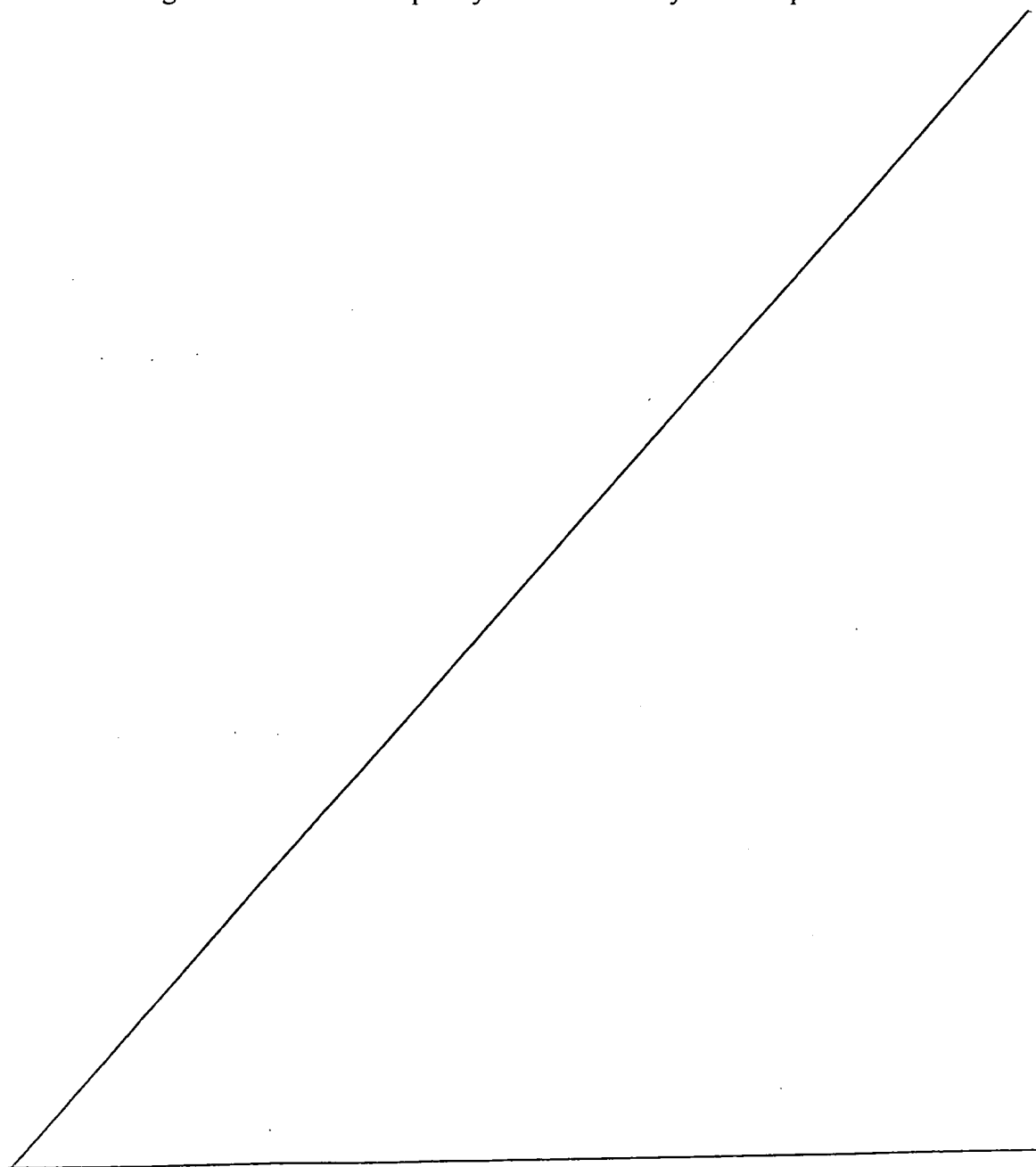
Figure 9 is a side view of a syringe driver housing according to an embodiment of the present invention, shown adapted for receiving a small syringe; and

Figure 10 is a side view of the syringe driver housing shown in Figure 9, adapted for receiving a large syringe.

Referring to the accompanying drawings, a syringe driver assembly is illustrated that has been modified according to the present invention to enable the syringe housing 2 to accept syringes of different volumes, such as 5, 10, 20 and 30 ml syringes. The invention not only enables syringes of different sizes to be housed within the device but also allows for a reduction in size of the housing when a smaller syringe is to be housed therein, thereby keeping the assembly as small as possible. This is desirable as it results in the device being discrete for the user and fully portable.



Figures 1 to 5 of the accompanying drawings illustrate a syringe housing nor forming an embodiment of the present invention for receiving a relatively large volume syringe, such as 30ml. The syringe housing 2 comprises a main body 4 for receiving the internal components of the syringe driver or pump, a cover 6 and an extension 8. The internal working components that allow effective operation of the driver (such as the motor, battery and electronic circuitry) are omitted from the drawings for the sake of simplicity. The main body 2 is comprised of a moulded



Figures 9 and 10 of the accompanying drawings illustrate a syringe driver housing according to an embodiment of the present invention. The housing 2 again consists of a main body 4 containing the working components of the syringe driver and a cover 6a or 6b hingedly mounted thereto. Figure 9 illustrates the housing adapted for receiving a syringe 100 of a relatively small length wherein the length of the cover 6a corresponds to the length of the body part 4. A different cover 6b is provided for providing a housing that can receive a syringe of greater length, as illustrated in Figure 10. The cover 6b is a moulded component and is in the general shape of a hook wherein the long arm 200 of the hook forms the cover over the syringe and the tail 202 of the hook forms an extension for mating with the end of the main body 4 thereby providing a main body of greater length. It is to be appreciated that the inner edges of the tail of the hook have a profile that correspond to the end of the main body. Suitable means may be provided for providing a tight connection between the tail of the hook and the end of the main body.



## CLAIMS

1. A housing for a syringe driver assembly comprising a main body part (4) for supporting a syringe and at least two interchangeable covers (6a, 6b) for attachment to the main body part, characterised in that the main body part (4) is sized to receive a syringe of a relatively small length and a first interchangeable cover (6a) is of a similar length to the main body part for extending over the syringe to provide a closed housing and wherein a second cover (6b) provides an extension (202) to the body part, the second cover having a longitudinal cross-section in the general form of a hook comprising a long arm (200) and a tail (202), the long arm forming the cover for laying over the syringe and the tail forming the extension for mating with the main body part.
2. A housing as claimed in claim 1 wherein the long arm comprises two sides connected by a roof section.
3. A housing as claimed in claim 2 wherein both sides of the long arm (200) extend around to form the hook thereby forming an internal cavity or recess for receiving the end of the syringe.
4. A housing as claimed in any one of the preceding claims wherein each cover (6) is hingedly mountable to the main body part.
5. A housing as claimed in any one of the preceding claims wherein the main body part and covers are formed as moulded components.
6. A kit of parts for providing a housing for a syringe driver assembly comprising a main body part (4) for supporting a syringe and at least two interchangeable covers (6a, 6b) for attachment to the body part, characterised in that a first cover is of a similar length to the main body part for extending over the syringe

to provide a closed housing and a second cover provides an extension to the body part, the second cover having a longitudinal cross-section in the general form of a hook comprising a long arm (200) and a tail (202), the long arm forming a cover for laying over the syringe and the tail forming the extension for mating with the main body part.